Newton’s Three Laws of Motion Study Guide

1. What is Newton's 1st Law of Motion? (Make sure to include the two different parts of the law.) Newton's first law states that, if a body is at rest or moving at a constant speed in a straight line, it will remain at rest or keep moving in a straight line at constant speed unless it is acted upon by a force.
2. What is the difference between unbalanced and balanced forces? When the forces acting on an object have equal strength and act in opposite directions they are balanced. When the balanced forces act on an object they become unbalanced.
3. What are 2 examples of Newton's 1st Law? Explain how each example relates/ demonstrates Newton's 1st Law. When you ride a skateboard and you are flying off it that demonstrates Newton's 1st Law because an object in motion will stay in motion unless a force acts on it. When you are flying off a snowboard when you hit a rock that demonstrates Newton's 1st Law. This demonstrates Newton’s 1st Law because the snowboard stayed in motion until it hit the rock.
4. What is Newton’s 2nd Law of Motion? Newton's second law of motion states that acceleration is produced when a force acts on a mass. The greater the mass of the object to be accelerated the greater the amount of force needed to accelerate the object.
5. What is the relationship between the force on an object and the object's acceleration? Newton's second law shows that there is a direct relationship between force and acceleration. The greater the force that is applied to an object of a given mass, the more the object will accelerate. The greater the mass of an object, the less it will accelerate when a given force is applied.
6. What are 2 examples of Newton's 2nd Law? Explain how each example relates/ demonstrates Newton's 2nd Law. One example of Newton’s Second Law is if you use the same force to push a truck and push a car, the car will have more acceleration than the truck, because the car has less mass. The second example of Newton’s Second Law is it is easier to push an empty shopping cart than a full one, because the full shopping cart has more mass than the empty one. The empty cart will go farther because it has less mass.
7. What is Newton’s 3rd Law of Motion? I think his third law is that for every force in nature there is an equal and opposite reaction.
8. How do forces act in pairs? Forces act on pairs because every time one object exerts a force on another object, the second object exerts a force that is equal in size and opposite in direction back on the first object.
9. What are **five** examples of Newton’s 3rd of motion? Make sure to describe which force in the pair is the action and which is the reaction. While rowing a boat, when you want to move forward on a boat, you paddle by pushing the water backwards, causing you to move forward. Paddling is the action and moving forward is the reaction. While walking, you push the floor or the surface you are walking on with your toes and the surface pushes your legs up. Walking is the action and the floor pushing you up is the reaction. Helping you to lift your legs up. When the golfer swings the ball it has a lot of force and action because when the golfer swings the golf club you're using a lot of force to hit the golf ball. When the golf club hits the ball it has a lot of force because the more you swing harder the farther it goes. The action is swinging the club and the reaction is the golf ball. When the girl pushes it has a lot of force and action to push away from the boy. When the girl pushed herself away she had a lot of force because she was pushing the opposite way and that pushed her that way. The action is the girl pushing and the reaction is the force of her push made her body move backwards. When a frog makes a leap pushing off the pad it has a lot of force and action because when the frog goes forward, and the lily pad goes backward it has an equal and opposite reaction. When the frog makes a leap it has a lot of force because when you jump off the ground you use a lot of force. The action is the frog jumping and the reaction is the lilypad going backwards.